

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. **(currently amended)** A planar inverted F antenna having a radiation patch, comprising:

a first radiation patch, with a linearly tapered edge, for radiating a signal;  
a ground plate for grounding the first radiation patch;  
a feeding line for supplying an electric power to the first radiation patch;  
a shorting plate having a length disposed between the first radiation patch and the ground plate, said shorting plate being in direct physical connection with the first radiation patch along a first width and the ground plate for shorting the first radiation patch along a second width, said second width being located opposite to the first width;  
and

a second radiation patch connected to ~~connecting~~ the first radiation patch, extending towards [[and]] the ground plate, and having a length shorter than the length of the shorting plate;

wherein said linearly tapered edge is corrugated.

2-3 (Cancelled)

4. (Previously Presented) The planar inverted F antenna of claim 1, the length and a width of the second radiation patch are determined according to a desired resonant frequency.

5. (Original) The planar inverted F antenna of claim 4, wherein a ratio of taper in the first radiation patch, the number of corrugated hollows, the predetermined length and

width of the corrugated hollows are determined according to the desired resonant frequency.

6. (Previously Presented) The planar inverted F antenna of claim 1, wherein the second radiation patch is located on a side of the first radiation patch opposite to the shorting plate.

7. (Previously Presented) The planar inverted F antenna of claim 1, wherein the second radiation patch is located on a side of the first radiation patch adjacent to the shorting plate.

8. **(currently amended)** A planar inverted F antenna having a radiation patch, comprising:

- a first radiation patch for radiating a signal, comprising:

- a first edge;

- a second edge parallel to the first edge and having a length smaller than a length of the first edge;

- a third edge adjacent to the first edge and connecting the first edge and the second edge at a first point and a second point, respectively;

- a fourth edge adjacent to the first edge and parallel to the third edge, said fourth edge connecting the first edge at a third point, and

- a linearly tapered corrugated fifth edge connecting the fourth edge and the second edge at fourth and fifth points, respectively, wherein said fourth point is located away from the third point and on the fourth edge and said fifth point being located away from the second point on the second edge;

- a ground plate for grounding the first radiation patch;

- a feeding line for supplying an electric power to the first radiation patch;

- a shorting plate having a length disposed between the first radiation patch and the ground plate;

a second radiation patch coupled to at least one of the edges of the first radiation patch and disposed between the first radiation patch and the ground plate, wherein said first radiation patch is disposed in a plane parallel to the ground plate;

wherein said fifth edge comprises a plurality of corrugated hollows each extending from a straight line connecting said fourth and fifth points toward said third edge.

9. (cancelled)

10. **(currently amended)** The planar inverted F antenna of claim 8, wherein the shorting plate has [[a]]

said length disposed between the first radiation patch and the ground plate, and first and second widths along which said shorting plate is coupled to the first edge of the first radiation patch along a first width and coupled to the ground plate for shorting the first radiation patch along a second width, respectively, said second width being located opposite to the first width.

11. **(currently amended)** The planar inverted F antenna of claim 10, wherein the second radiation patch first width is coupled to the [[first]] second edge of the first radiation patch.

12. **(currently amended)** The planar inverted F antenna of claim 10, wherein the second radiation patch first width is coupled to the fourth edge of the first radiation patch.

13. **(currently amended)** The planar inverted F antenna of claim 11, wherein the length of the shorting plate is greater than a length of the second radiation patch between the first radiation patch and the ground plate.

14. **(currently amended)** The planar inverted F antenna of claim 12, wherein the length of the shorting plate is greater than a length of the second radiation patch between the first radiation patch and the ground plate.

15. **(canceled)**

16. **(currently amended)** The planar inverted F antenna of claim [[8]] 14, wherein the feeding line is directly coupled to ~~disposed between~~ the first edge of the first radiation patch and the ground plate between the shorting plate and the second radiation patch.

17. **(currently amended)** The planar inverted F antenna of claim 8, wherein [[the]] a length and a width of the second radiation patch are determined according to a desired resonant frequency.

18. **(currently amended)** The planar inverted F antenna of claim [[15]] 8, wherein a ratio of taper in the first radiation patch, the number of corrugated hollows defined in the linearly tapered corrugated edge, a ~~the predetermined~~ length and a width of each of the corrugated hollows are determined according to the desired resonant frequency.

19. **(new)** The planar inverted F antenna of claim 8, wherein each of the corrugated hollows includes two opposite side edges parallel to the first edge, and a bottom edge parallel to the third edge.

20. **(new)** The planar inverted F antenna of claim 19, wherein distances between (i) the third edge and (ii) the bottom edges of the corrugated hollows increase from the second edge toward the first edge.

21. **(new)** The planar inverted F antenna of claim 20, wherein  
the shorting plate is directly coupled to and between the first edge of the first radiation patch and the ground plate;  
the length of the shorting plate is greater than a length of the second radiation patch between the first radiation patch and the ground plate;  
the second radiation patch is directly coupled to the second edge of the first radiation patch; and

the feeding line is directly coupled to the first edge of the first radiation patch between the shorting plate and the fourth edge.

22. **(new)** The planar inverted F antenna of claim 20, wherein

the shorting plate is directly coupled to and between the first edge of the first radiation patch and the ground plate;

the length of the shorting plate is greater than a length of the second radiation patch between the first radiation patch and the ground plate;

the second radiation patch is directly coupled to the fourth edge of the first radiation patch; and

the feeding line is directly coupled to the first edge of the first radiation patch between the shorting plate and the second radiation patch.